Remarks:

Claim amendments:

Claims have been amended to comply with examiner's objections and in response to rejections. No new matter has been added.

Informalities

Informalities in claims 1 and 2 have been corrected according to the examiner's suggestions: in claim 1, "Method" was changed to "A method", in claim 2, "between 0.1 to 8 M" was changed to "between 0.1 and 8 M".

Informalities in claims 4, 7, 5 and 8 involved terms "wherein the incubation temperature (time)" that the examiner suggested correcting to "wherein the incubation temperature (time) in step d) and step e)". As is discussed below, the Applicants amended the claims to simultaneously correct the informalities and overcome the 35 U.S.C. §112 rejection. The claims now state "temperature (time) of said incubation in step d) and e)."

Claim rejections under 35 U.S.C. §112

Claims 4-5 and 7-8 were rejected for the lack of antecedent basis in these claims and in claim 1 upon which they directly depend. The claims are amended to obviate the rejections.

Specifically, the rejected claims referred to "incubation time" and "incubation temperature", while claim 1 refers only to "incubation". The rejected claims are amended to refer to "said incubation in step (...)". Claim 1 properly recites "incubation in steps (d) and (e)". As to the time and temperature, inherent components of elements recited have antecedent basis in the recitation of the components themselves. *See* MPEP 2173.05(e), citing *Bose Corp. v. JBL, Inc.*, 274 F.3d 1354, 1359, 61 USPQ2d 1216, 1218-19 (Fed. Cir 2001), which held that recitation of "an ellipse" provided antecedent basis for "an ellipse having a major diameter" because "[t]here can be no dispute that mathematically an inherent characteristic of an ellipse is a major diameter". Similarly, in the present case, there can be no dispute that in the art of chemistry, each incubation is characterized by incubation temperature and incubation time. Therefore the term "incubation" provides sufficient antecedent basis for the terms "temperature of said incubation" (claims 4 and 7) and "time of said incubation" (claims 5 and 8).

In view of the foregoing, the §112 rejection no longer applies to the amended claims. The withdrawal of the rejection is respectfully requested.

Claim rejections under 35 U.S.C. §102

Claim 1 was rejected under §102(e) over Zon, U.S. Patent Application Publication 2005/0153308. The examiner stated that Zon teaches each of the steps (a) – (f) recited in the claim. With respect to step (b), the examiner stated that Zon teaches "providing guanidinium hydrogen sulfite (bisulfite (=hydrogen sulfite) + guanidine compound) and preparing solution comprising guanidinium and sulfite ions." The rejection is respectfully traversed.

The claim originally recited, "providing guanidinium hydrogen ***sulfite*** and preparing a ***solution*** comprising guanidinum and sulfite ions." The claim is now amended to state "providing guanidinium hydrogen ***sulfite*** and preparing a ***solution*** ~~comprising~~ consisting of guanidinum and sulfite ions." Therefore this step consists of two aspects: providing a salt (sulfite) and making a solution of the salt. The prior art differs from the claimed method in each of the two aspects.

First, with respect to providing the salt, the claim requires a guanidnium hydrogen sulfite salt to prepare a solution containing the respective ions. Zon teaches a magnesium bisulfite salt instead of guanidinium hydrogen sulfite salt. Zon teaches the advantages of the magnesium salt over others and the use of magnesium salt to the exclusion of all others (*see* [0035]). Further, Zon considers the use of specifically magnesium salt (or a solution of a magnesium salt) as one of the essential features of his invention (*see id*).

Second, with respect to the solution, the claim requires that it consist of guanidinium ions and sulfite ions. In Zon, the solution is not limited to these ions. When a solution is made using magnesium salt, at least one other ion, magnesium, is present. This change materially alters the reaction mixture. First, in Zon, guanidinium is no longer present as a counter-ion to the bisulfite. Therefore the amounts of these ions are no longer exactly equal. In fact, Zon teaches using nearly 10-fold fewer guanidinium ions than the bisulfite ions (0.06—0.14M vs. 0.5-2.5M, *see* [0013]). In contrast, in the Applicants' invention, the amounts of guanidinium and bisulfite are exactly equal since these ions are counter-ions, resulting from the dissociation of the same salt crystal. Second, magnesium inevitably influences subsequent steps, such as DNA amplification by polymerase chain reaction (PCR). Magnesium has been known to affect many aspects of PCR, including primer annealing, strand dissociation, product formation, artifact formation,

product specificity and enzyme activity and fidelity. (*See* Innis, M. A. et al., PCR Protocols, Academic Press (1990), p. 6.) The optimal magnesium concentrations in PCR range between 0.5 and 2.5 mM (*see id.*). This is a 1000-fold less than 0.5-2.5M in Zon's bisulfite reaction (*see* [0013]). Therefore Zon faces a task of removing the excess magnesium should the subsequent steps of his method involve PCR. In contrast, the Applicants' method does not use magnesium and does not have this problem.

In summary, because Zon does not teach using guanidinium bisulfite salt and does not teach making a solution with only guanidinium and bisulfite ions, Zon does not anticipate claim 1. Reconsideration and withdrawal of the §102(e) rejection over Zon are respectfully requested.

Claim 2 depends upon claim 1 and therefore incorporates all the limitation of that claim. In view of the foregoing, claim 2 is also not anticipated by Zon. Additionally, with regard to claim 2, Zon teaches the concentration of polyamine catalyst (such as guanidinium) between 0.06M and 0.14M. Claim 2 teaches guanidinium concentration between 0.1M and 8M. This difference also precludes a §102(e) rejection over Zon.

When the prior art discloses a range which touches or overlaps the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation. *See* MPEP 2131.03(II). In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute." *See id.* Further, while there is a slight overlap between the reference's preferred range and the claimed range, that overlap was not sufficient for anticipation. "[T]he disclosure of a range is no more a disclosure of the end points of the range than it is each of the intermediate points." *See id.*, citing *Atofina v. Great Lakes Chem. Corp*, 441 F.3d 991, 1000, 78 USPQ2d 1417, 1424 (Fed. Cir. 2006).

In the present case, the ranges overlap only slightly: 0.06-0.14M in the prior art and 0.1-8M in the claims. The overlapping portion constitutes a small fraction of each range (0.1-0.14M). The prior art does not provide any examples in this range of overlap. In the examples 3-10, the polyamine DETA is present at concentrations 0.018M (examples 3, 4), 0.056M (examples 5, 6), 0.097M (examples 7, 8) and 0.078M (examples 9, 10). *See* Table 1[1]. None of the prior art examples even approaches the range of overlap 0.1-0.14M. Under these circumstances, the

[1] The total volume of each reaction is the sum of the volumes shown in the table as verified by checking the indicated final concentrations (i.e. "to yield xM").

MPEP and the Federal Circuit precedent dictate the conclusion that the prior art does not anticipate the claimed range.

Based on the foregoing, withdrawal of the rejection of claim 2 under §102(e) is respectfully requested.

Claims 3-8 were also rejected over Zon under §102(e). Each of these claims depends directly upon claim 1 and therefore incorporates all the limitations of claim 1. In view of the foregoing, claims 3-8 may not be rejected over Zon under §102(e). Reconsideration and withdrawal of the rejections are respectfully requested.

Conclusion:

In view of the above, Applicants believe that all claims now pending in this Application are in condition for allowance. The Commissioner is hereby authorized to charge a fee for one-month extension of time (large entity) to Deposit Account No. 50-0812. Further, Commissioner is authorized to charge any fee deficiency, or credit any overpayment, to the same Deposit Account No. 50-0812.

If the Examiner believes that a telephone conference would expedite prosecution of this application, please telephone the undersigned directly at 510-814-2706.

Respectfully submitted,

Date: December 17, 2007

Olga Kay (Reg. No. 57,459)

Roche Molecular Systems, Inc.
1145 Atlantic Avenue
Alameda, CA 94501
Tel: (510) 814-2706
Fax: (510) 814-2973